



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Aquatic Chemistry

ENVENG 5718

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate

Course Components:

Lecture

Course Description:

Examination of the processes that control chemical equilibria in natural waters: acid/base reactions, metal complexation/speciation and oxidation-reduction processes. Intended for students in EarthSci, CivilEn, and the Grad EnvSci program.

Prerequisites and Co-requisites:

Prereq: Chem 1220 or above, and Math 1151 or above; or equivalents.

Course Goals / Objectives:

- Apply chemistry concepts to develop quantitative solutions to problems of water chemistry and water quality
 - ? Using appropriately the language of environmental chemistry ? Extracting information from the relevant literature ? Formulating relevant governing reactions, including: ? Identifying components ? Obtaining governing reactions
 - ? Applying modern tools to obtain quantitative solutions: ? Defining key input terms ? Describing solution steps with rationale ? Evaluating qualitatively outcomes of system perturbation
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Course Topics:

- Case Study in Environmental Organic Chemistry
 - Case Study in Degradation
 - Thermodynamics of Equilibrium Systems
 - Introduction to Inorganic Aquatic Chemistry
 - Case Study in Acid-Base Chemistry
 - Case Study in Complexation Chemistry
 - Case Study in Precipitation Chemistry
 - Case Study in Redox Chemistry
 - Case Study in Surface Complexation
 - Case Study in Organic Matter
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Designation:

Elective